



APT2X30D120J 1200V 30A
APT2X31D120J 1200V 30A

DUAL DIE ISOTOP® PACKAGE

ULTRAFAST SOFT RECOVERY DUAL RECTIFIER DIODES

PRODUCT APPLICATIONS

- Anti-Parallel Diode
 - Switchmode Power Supply
 - Inverters
- Free Wheeling Diode
 - Motor Controllers
 - Converters
- Snubber Diode
- Uninterruptible Power Supply (UPS)
- Induction Heating
- High Speed Rectifiers

PRODUCT FEATURES

- Ultrafast Recovery Times
- Soft Recovery Characteristics
- Popular SOT-227 Package
- Low Forward Voltage
- High Blocking Voltage
- Low Leakage Current

PRODUCT BENEFITS

- Low Losses
- Low Noise Switching
- Cooler Operation
- Higher Reliability Systems
- Increased System Power Density

MAXIMUM RATINGS

All Ratings: $T_C = 25^\circ\text{C}$ unless otherwise specified.

Symbol	Characteristic / Test Conditions	APT2X30/2X31D120J	UNIT
V_R	Maximum D.C. Reverse Voltage	1200	Volts
V_{RRM}	Maximum Peak Repetitive Reverse Voltage		
V_{RWM}	Maximum Working Peak Reverse Voltage		
$I_F(AV)$	Maximum Average Forward Current ($T_C = 80^\circ\text{C}$, Duty Cycle = 0.5)	30	Amps
$I_F(RMS)$	RMS Forward Current	70	
I_{FSM}	Non-Repetitive Forward Surge Current ($T_J = 45^\circ\text{C}$, 8.3ms)	210	
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_L	Lead Temperature: 0.063" from Case for 10 Sec.	300	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
V_F	Maximum Forward Voltage	$I_F = 30\text{A}$		2.5	Volts
		$I_F = 60\text{A}$		2.0	
		$I_F = 30\text{A}, T_J = 150^\circ\text{C}$		2.0	
I_{RM}	Maximum Reverse Leakage Current	$V_R = V_R$ Rated		250	μA
		$V_R = V_R$ Rated, $T_J = 125^\circ\text{C}$		500	
C_T	Junction Capacitance, $V_R = 200\text{V}$		30		pF
L_S	Series Inductance (Lead to Lead 5mm from Base)		10		nH

USA

405 S.W. Columbia Street
EUROPE

Avenue J.F. Kennedy Bât B4 Parc Cadéra Nord

APT Website - <http://www.advancedpower.com>

Bend, Oregon 97702-1035

F-33700 Merignac - France

Phone: (541) 382-8028

Phone: (33) 5 57 92 15 15

FAX: (541) 388-0364

FAX: (33) 5 56 47 97 61

DYNAMIC CHARACTERISTICS

APT2X30/2X31D120J

Symbol	Characteristic	MIN	TYP	MAX	UNIT
t_{rr1}	Reverse Recovery Time, $I_F = 1.0A$, $di_F/dt = -15A/\mu s$, $V_R = 30V$, $T_J = 25^\circ C$		70	85	ns
t_{rr2}	Reverse Recovery Time	$T_J = 25^\circ C$	70		
t_{rr3}	$I_F = 30A$, $di_F/dt = -240A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	160		
t_{fr1}	Forward Recovery Time	$T_J = 25^\circ C$	255		
t_{fr2}	$I_F = 30A$, $di_F/dt = 240A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	255		
I_{RRM1}	Reverse Recovery Current	$T_J = 25^\circ C$	7	12	Amps
I_{RRM2}	$I_F = 30A$, $di_F/dt = -240A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	12	20	
Q_{rr1}	Recovery Charge	$T_J = 25^\circ C$	660		nC
Q_{rr2}	$I_F = 30A$, $di_F/dt = -240A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	1640		
V_{fr1}	Forward Recovery Voltage	$T_J = 25^\circ C$	15		Volts
V_{fr2}	$I_F = 30A$, $di_F/dt = 240A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	20		
diM/dt	Rate of Fall of Recovery Current	$T_J = 25^\circ C$	245		A/ μs
	$I_F = 30A$, $di_F/dt = -240A/\mu s$, $V_R = 650V$ (See Figure 10)	$T_J = 100^\circ C$	160		

THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			0.90	$^\circ C/W$
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance			20	
$V_{Isolation}$	RMS Voltage (50-60 Hz Sinusoidal Waveform from Terminals to Mounting Base for 1 Min.)	2500			Volts
W_T	Package Weight		1.03		oz
			29.2		gm
Torque	Maximum Torque (Mounting = 8-32 or 4mm Machine and Terminals = 4mm Machine)			13.6	lb•in
				1.5	N•m

APT Reserves the right to change, without notice, the specifications and information contained herein.

SOT-227 Package Outline

